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THE WILSON BULLETIN

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WILSON BULLETIN
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A QUARTERLY JOURNAL OF ORNITHOLOGY

VOL. XXXI DECEMBER, 1919 NO. 4

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SOME CHANGES IN THE SUMMER BIRD LIFE AT DELAVAN, WISCONSIN

BY N. HOLLISTER

A recent three weeks' visit to Delavan, Wisconsin, from July 7 to 26, 1919, gave me the first opportunity in many years to compare the summer bird life of today in my home county with that of twenty to thirty years ago. From boyhood I had closely observed the birds in this region, and my first journal begins in 1888. From 1891 until 1902 I was especially active as a collector of birds and was almost daily in the field. I left Wisconsin early in 1902 and except for a brief visit in the summer of 1907, with no opportunity for the observation of birds, my occasional trips to Delavan have been at some other time than the breeding season.

Delavan is in southeastern Wisconsin, in a beautiful country of varied physiography, with abundant streams and lakes, forests, prairies, marshes, and farmland. It has always been a most favorable region for bird life.

My first impression, on this recent visit, was that birds were more abundant than at the time of my main ornithological activity in Wisconsin, and the three weeks of excursions afield convinced me that this is true. Several species, as summer residents, are conspicuously more abundant now, and many others have held their own in numbers. A few, on the other hand, have almost or comly disappeared from the region.

One of the most notable cases of increase is that of the

house wren. I had never been able to obtain a breeding bird of this species although two forms, *Troglodytes aëdon aëdon* and *T. a. parkmani* (or, as we called it then, *aztecus*), were common during migrations. House wrens were reported by ornithologists as breeding now and then in other portions of the state and some few may have been present in my region, but as a summer resident the bird was certainly rare in the vicinity of Delavan. Now I found it, in July, one of the most conspicuous and generally distributed of town birds. It rivals the martin in popularity and everywhere I went were wren houses occupied by busy, singing wrens. Such favorites indeed are the birds that I should hesitate to be the collector of the desired series of breeding examples for subspecific determination. I suspect that both *aëdon* and *parkmani* will now be found nesting within the state.

Purple martins have also increased in numbers. Martin houses are much more common than formerly, and no one seems to have trouble in obtaining the desired tenants. Sentiment in a bird's favor is the greatest help in its survival and increase in settled communities.

The crested flycatcher has certainly greatly increased in numbers as a breeding bird. In my collecting days at Delavan I had to go to certain unfrequented woods to find the great-crest, but now it is much more common; I saw it often in places it never used to inhabit, and it has actually become a town bird. I also saw the wood pewee feeding young in a nest on an oak limb over our own house, near the city street; something I should have been much surprised to note twenty years ago. Though always abundant in that vicinity, the pewee was never suspected of being a city dweller. Both the red-headed woodpecker and the yellow-billed cuckoo are much more abundant and generally distributed than formerly, although both were common summer birds in my collecting days in Wisconsin. They are now city birds also, and the red-head seemed one of the most conspicuous birds of the country roadside.

The effects of spring protection for waterfowl are especially noticeable; more ducks breed about Delavan than at any time since I can remember; and if they continue to increase the numbers of young birds must soon approach in some measure those of the still earlier days before the ducks were forced by an army of spring shooters to desert their old breeding grounds. In my shooting days at Delavan we killed almost entirely wood ducks on the opening of the season (August 20, or later on September 1), and individuals of other species before the first fall migration had commenced were comparatively rare. Some years there was a fair sprinkling of blue-winged teals, or an occasional mallard, gadwall, or other river duck. Now the mallard and blue-winged teal are the most common breeding species; black ducks are fairly so; and, most unexpectedly, I find that pintails now regularly nest. Last year (1918) fully fifty pintails were reared in one large marshy pond not over seven miles from Delavan, where the flocks of young birds were seen by sportsmen friends of mine before the shooting season opened. About five hundred ducks, mostly mallards, teals, wood ducks, and pintails were, I was told, found in this one pond on the opening day, September 16, 1918. Baldpates and pintails are of late years frequently found in the bags on the first day's shooting, and although there is no direct evidence that the baldpate nests, it is hardly likely that any extensive migration has taken place at that early date.

The robin, wood thrush, catbird, song sparrow, and kingbird are certainly as abundant as they were twenty-five years ago, and I feel almost sure that they have actually increased in numbers since that time. The black tern is still a most fimiliar bird in suitable localities and seems fully as abundant as formerly. As many as fifty terns were seen in one flock, the adults and young congregated on the muddy shore and a nearby fence. At each of the old ponds and marshes that I vistied during my stay I saw numbers of them gracefully hunting for insects low over the water

and flags. The mourning dove and prairie chicken, both supposed to enjoy full protection, are not recuperating as they should under favorable conditions. The prairie chicken is no doubt kept from actual increase only by the illegal shooting of a few poachers and would, if the laws for its protection were rigidly enforced, become a much more common and generally distributed bird. Of course those now to be found are but a mere fraction of what were here at one time, but I do not think the prairie chicken has much decreased in numbers, locally, during the past twenty years. Its plentifulness in any given year is in a great measure dependent on the weather conditions at nesting time.

Among the more familiar of the smaller birds that seem to me to have been distinctly reduced in numbers are the bluebird, brown thrasher, barn swallow, cliff swallow, and chipping sparrow. The dickcissel was certainly not as abundant as I have seen it, but this species was always subject to a considerable variation in numbers from year to year.

There are, I think, fewer crows than at one time. The mania for crow shooting, fostered for commercial reasons by a great powder company, has swept this country as well as other states and it is no uncommon thing to find several dead crows under a single tree. It appears to me that the pernicious practice of summer crow shooting is bound to have a direct detrimental influence on the other breeding birds, game birds as well as beneficial hawks and owls, the herons and all other conspicuous bird targets. It is a very bad policy indeed to encourage an army of boys and irresponsible men to roam the country with guns throughout the entire spring and summer. It is not human nature for them to confine their shooting to the crow alone; harmless or valuable birds are killed and breeding game birds, if not actually slaughtered, are much disturbed. Even were it proved that the crow is a distinct menance to the game and

other birds, they will suffer vastly more from this promiscuous summer hunting than from the crow itself.

All breeding hawks are distinctly reduced in numbers. I saw, during the three weeks, only one marsh hawk and one Cooper's hawk. The marsh hawk formerly was really common and the red-tail was a regular breeder in considerable numbers. The summer crow shooters are, I think, largely to blame for this disgraceful extermination of breeding hawks. The nighthawk, pied-billed grebe, and wood duck are less in numbers than formerly; of the first two I happened to see only a single example of each. Wood ducks are still much commoner as nesting birds than in most parts of the range of the species, but are not so plentiful as they were twenty or more years ago.

I saw no Forster's terns nor upland plovers whatever; they seem to have completely disappeared from their old breeding haunts; and saddest of all the ruffed grouse has gone—I interviewed many hunters and others and could not find a single person who has seen one in five or six years. Some few are doubtfully reported in the extreme northern part of the county but the woods about Delavan where the grouse was formerly plentiful are absolutely barren of this glorious bird. The grouse was not exterminated by shooters; I think the pasturing of the wood lots and the ever present house cat are chiefly to blame. The Hungarian partridge, a poor substitute indeed, has been introduced, is locally common just north of us, and may eventually take the place of the native bird.

Altogether, during the three weeks' visit, I saw sixty-eight species of breeding birds, but as I made no special effort to search out certain kinds the list is much smaller than it might have been. The immense weed, grass, and fern grown marsh or low-land prairie, which has been the breeding grounds for Henslow's sparrows and short-billed marsh wrens since long, long before my time, is being slowly reclaimed. The cornfields and pastures are eating into it on all sides, and will, before many years, meet in its

very center. I have never found a single example of either of these birds in any other locality in this region during the breeding season. What will become of them, as well as the hordes of bobolinks, the marsh hawks, the prairie hens, and other characteristic nesting birds, when the last acre of virgin sod is ploughed for corn? The sandhill cranes, which still frequent this marsh in the spring and fall, deserted it for the breeding season many years ago. The last record of a crane's nest here that can be considered authentic was in 1883. The other birds, less alarmed by settlement but requiring these exact conditions, must soon look elsewhere for breeding grounds. And with the marsh and the birds, will disappear, locally, the Blanding's turtle, the last massasauga, the pitcher plant, rare orchids, and a generally peculiar native fauna and flora not otherwise represented in this immediate region.

Extreme abundance of a certain few birds during the nesting season will be poor compensation for the loss of others. Personally, I prefer to see a goodly number of species on a day's excursion rather than hundreds of robins, martins, wrens and other familiar birds. But those species that are able to adapt themselves to changed conditions are the ones that may and do increase. In southern Wisconsin, as in some other parts of the world, they will, I believe, grow more and more abundant; while many of the more interesting and beautiful forms of bird life must become rarer and more restricted, until they cease to nest at all, as the conditions necessary to their very existence are swept away. A number of nesting birds have been exterminated in southern Wisconsin since the settlement of the country. We can not help but wonder which species will be the next to go. The ruffed grouse, the Forster's tern, and the upland plover were depleted in numbers at Delavan, but no one, twenty years ago, would have predicted their complete disappearance from this region within so short a time.

NOTES ON BIRDS OF WAKULLA COUNTY, FLORIDA

JOHN WILLIAMS, ST. MARKS, FLA.

Wakulla County lies directly south of Leon County, wherein is located our State Capital, St. Marks being twenty miles directly south from Tallahassee.

The county covers about five hundred square miles and has a frontage on the Gulf (Apalachee Bay) of about twenty-five miles.

The eastern portion of the county is traversed by the St. Marks river, on which, eight miles up from the Gulf, our little village is located.

In general the surface of the county is a low coastal plain of limestone formation, the greatest elevation about sixty feet above sea-level.

Large areas are covered with water at times of protracted rains. Sinks are numerous and in two instances large streams appear directly from such openings. Several sulphur springs occur. The soil is sand and sandy loam. Cypress, Palmetto, Long-leaf and Pitch Pines, Sweet Gum, Live Oaks and Water Oaks are the prevailing trees in the lower sections, while in the higher hummocks Red Oaks, White Oaks, Hickory and Dogwood are common and on the sandy ridges Black Jack barrens occur.

Farming, while practiced somewhat, has not advanced greatly except in a few isolated cases. Turpentine industry is quite general throughout the county. Vast marshes line the coast and tidal streams and in many places the so-called "Open Piney Woods" are little more than sparsely timbered marshes.

Commercial fishing is followed to a considerable extent along shore, St. Marks being the principal shipping point, while seine yards are operated at a few places during the months of October and November each year and have some bearing on the abundance of certain species of birds.

Local interest in the bird life of the county has been found quite limited and little reliable information is to be gleaned except at first hand. Fortunately there are a few exceptions thereto and the writer desires to extend his hearty appreciation for numerous valued notes from the Messrs. W. F. and T. A. Linton of St. Marks and from their brother, Mr. John Linton of Wakulla, who have freely given from their almost life-long experiences in the county.

These observations, while extending over several years, have been as a recreation and of necessity at spare time from business. While for the most part they refer to the section lying on and near the coast, occasional trips have been made farther inland. As my work has been at St. Marks, so the notes are mainly from that immediate locality.

1. *Colymbus auritus*—Horned Grebe.

Numerous in the lower river and along shore in the Bay. Arrive in early November and remain until April. November 3, 1917, April 21, 1919.[1]

2. *Podilymbus podiceps*—Pied-billed Grebe.

Frequent the fresher waters rather than in the Bay. Common from the last of September until early April. Some of the fishermen report "Dodappers" in the summer and a few may occasionally nest with us. September 20, 1916, April 3, 1914. One caught in a fisherman's net June 21, 1919.

3. *Gavia immer*—Loon.

To be seen regularly along shore and in the larger rivers and streams from early September until late in April. September 4, 1913, April 26, May 16, 1914. Not unusual to see five or six in close company.

4. *Larus argentatus*—Herring Gull.

Arrive regularly in October and remain until early May. At times abundant up the river to our village, gleaning from fish refuse. September 27, 1917, May 4, 1914.

5. *Larus delawarensis*—Ring-billed Gull.

I have only identified this species on two or three occasions, but believe it to be of regular winter occurrence, along the coast and lower river areas. My records are all in December.

[1] Unless otherwise indicated the dates represent the extremes in seasonal records.

6. *Larus atricilla*—Laughing Gull.

A nesting colony of about fifteen pairs has continued on our coast for several years. An extra high tide will sometimes destroy the eggs, but the birds usually rear some young. More numerous from the last of October until about April 1. June 6, 1915, nests with eggs and one or two young just hatched.

7. *Larus philadelphia*—Bonaparte's Gull.

Of regular winter occurrence, arriving the last of September and remaining probably until early May. September 30, 1917, February 26, 1917, May 3, 1919.

8. *Sterna maxima*—Royal Tern.

Probably occurs regularly in small numbers at the mouth of St. Marks river and the bars off Shell Point. One identified May 3, 1919. Not known to nest here.

9. *Sterna forsteri*—Forster's Tern.

Found usually along shore during the winter. Specimens taken April 11, 1915.

10. *Sterna hirundo*—Common Tern.

Occur regularly in winter and at times rather numerous. I have no nesting records.

11. *Sterna antillarum*—Least Tern.

Formerly this was a regular breeder at one or two places on our coast. It has not been noted the past eight or ten years.

12. *Sterna fuscata*—Sooty Tern.

Occur occasionally if not regularly in the spring. Possibly in the fall. April 10, 1917, May 22, 1913.

13. *Hydrochelidon nigra surinamensis*—Black Tern.

Occurs regularly but in varying abundance from mid-summer until fall. Single and scattering birds come up the river feeding as far as our village. In broader waters they frequently feed in flocks of twenty or more, hovering over bunches of small fish close along shore and dropping down after their prey. I have no spring records. July 4, 1915, October 5, 1917. Local name, "Mother Carey's Chicken."

14. *Rhynchops nigra*—Black Skimmer.

Formerly said to have nested along our shore. Apparently occurring rather rarely for several years, until the fall of 1917, when they were numerous. Local name, "Scissor-bill." June 8, 1917, September 29, 1917, April 22, 1919.

16. *Phaëthon americanus*—Yellow-billed Tropic-bird.

". . . Accidental at St. Marks, Fla." The A. O. U. Check List of N. Am. Birds, 1910, p. 58. Normally a strictly tropical species.

16. *Phæthon americanus*—Yellow-billed Tropic Bird.

One of our reliable fishermen states that on May 25, 1919, he saw a bird flying about the bars near our light house different

from any he had ever before seen. "About the size of the smaller black and white Gulls" (meaning the Common Tern,) "with a tail full eighteen inches long, that went back to a long slender point."

17. *Anhinga anhinga*—Water-Turkey.

My observations indicate the "snake birds" as occurring regularly throughout the year, but in small numbers. They are usually to be found along the upper reaches of our rivers or on lakes and ponds. At times they exhibit wonderful powers of high flying and soaring.

18. *Phalacrocorax auritus, floridanus*—Florida Cormorant.

A common species along our coast and frequently inland on rivers, lakes and larger ponds. Nest in colonies of fifty to one hundred or more pairs in a close group. Nests of loose sticks and twigs on tall cypress trees bordering a stream, pond or lake. Eggs early in April. In flying to and from their roosting places they are frequently in companies of five or six or more, range in single file, on slow, strong wing-beats, keeping but a few feet above the surface of the water as they travel up and down stream or off shore over the Bay. The mandibles are often held slightly open while in protracted flight. Local name, "Nigger Goose."

19. *Pelecanus erythrorhyncos*—White Pelican

Sometimes occur in considerable numbers, fifty or more, along shore from early fall until middle spring. Seemingly rare in mid-winter. August 29, 1912, October 2, 1917, April 26, 1918.

20.—*Pelecanus occidentalis*—Brown Pelican.

Seen in varying numbers throughout the year, although I am not aware of a nesting locality in our county. January 21, 1916, March 15, 1916, May 21, 1913, June 24, 1913, July 15, 1916. etc.

21. *Fregata aquila*—Man-o'-war-bird.

This bird of wonderful wing is to be seen from land only when driven in by stress of heavy wind. July 5, 1915, September 4, 1915, December 17, 1915.

22. *Mergus americanus*—Merganser. Winter visitor.

Perhaps this species occurs more frequently than my few records would indicate.

23. *Mergus serrator*—Red-breasted Merganser.

One of our most common aquatic winter visitors. Found singly and in varying flocks to twenty or more. Local names, "Sawbill" and "Hairy-head." October 10, 1918, May 8, 1917.

24. *Lophodytes cucullatus*—Hooded Merganser.

Decidedly less numerous than the preceding species. The "Fuzzy-head" frequently takes to ponds back from the bay and rivers.

25. *Anas platyrhynchos*—Mallard.

The "Greenhead" is with us in considerable numbers during the late fall and winter. October 22, 1916.

26. *Anas fulvigula fulvigula*—Florida Duck.

A few pairs of "Black Mallards" nest yearly on the broad marshes bordering our rivers and back from the Bay. Presumably they should be referred to this species.

27. *Anas rubripes*—Black Duck.

While the influx of Black Ducks during the winter may be in part of the preceding species our gunners believe they are largely from the North. R. W. Williams, Esq., reports them "Fairly abundant" at East Goose Creek, ten miles west of St. Marks, November 16-24, 1917. The Auk, January, 1919.

28. *Chaulelasmus streperus*—Gadwall.

Occur in irregular abundance from October until about April 1. Frequently resort to small ponds off from the rivers. Local name, "Widgeon."

29. *Mareca americana*—Baldpate.

I have not found it an abundant visitor. Usually a few are shot each winter.

30. *Nettion carolinense*—Green-winged Teal.

Both species of the common Teal are here during the winter, but in much fewer numbers than formerly. A few remain into April. September 26, 1917, April 11, 1915.

31. *Querquedula discors*—Blue-winged Teal.

The Teal are among the first ducks to arrive in the fall and may then often be found associated with Pintail. September 2, 1914.

32. *Spatula clypeata*—Shoveller.

The Shoveller may occur more frequently than my notes indicate. Gunners occasionally report a "Spoon-bill" Duck being shot.

33. *Dafila acuta*—Pintail.

One of our most abundant winter Ducks. Early to arrive and late in departure. September 24, 1916, early April.

34. *Aix sponsa*—Wood Duck.

The "Summer" Duck is with us in considerable numbers, being found in secluded ponds and less frequented parts of the rivers throughout the year.

35. *Marila americana*—Redhead.

Winter transient. Not numerous. So far as I have observed it occurs less frequently than does the Canvasback.

36. *Marila valisineria*—Canvas-back.

Winter transient. Quite irregular in abundance. During the winter of 1914-15 it was unusually numerous. In 1915-16 quite rare, 1917-18 again numerous.

37. *Marila marila*—Scaup Duck.

Our gunners confuse the two species of "Bullheads," both of which occur throughout the winter.

38. *Marila affinis*—Lesser Scaup Duck.

Decidedly the most numerous of our Ducks. Arriving from late September until mid-October the bulk depart in April, but a few usually remain throughout June, seemingly strong, sound birds. October 22, 1917. July 1, 1913, nine seen.

39. *Marila collaris*—Ring-neck Duck.

Winter visitor. Probably occurs regularly, but I have seen but few during the past few years.

40. *Charitonetta albeola*—Buffle-head.

Probably occurs regularly, but I have seen it but rarely. Winter visitor.

41. *Erismatura jamaicensis*—Ruddy Duck.

Winter visitor. Rarely noted along our rivers and bays.

42. *Chen hyperboreus nivalis*—Greater Snow Goose.

Seemingly rare along our coast. Lintous saw seven together October 30, 1916, and apparently the same bunch on the following day. One from a bunch of three shot November 23, 1918.

43. *Branta canadensis canadensis*—Canada Goose.

Occur along shore in considerable numbers during the winter, coming in on the flats to feed. The fishermen report them as numbering *thousands*, but in fact hundreds are to be seen at times. October 9, 1917, March 21, 1917.

44. *Branta canadensis hutchinsi*—Hutchin's Goose.

One found dead March 12, 1918, is referred to this form and identified by the Biological Survey.

45. *Ajaia ajaja*—Roseate Spoonbill.

The "Pink Curlew" was formerly a fairly common bird along our coast. For at least ten years I find no positive record of its occurrence here.

46. *Guara alba*—White Ibis.

Probably nests regularly with us. The only nesting colony I have seen was made up of about 30 pairs of birds and was associated with a much larger colony of Little Blue Herons (*F. cærulea*). April 4 the nests contained fresh eggs. Local name "White Curlew."

47. *Mycteria americana*—Wood Ibis.

While I have seen the "Garnet" here in both spring and fall I have no hint of their nesting within our limits. May 29, 1917, July 16, 1916, October 24, 1915.

48. *Botaurus lentiginosus*—Bittern.

I have not found the Bittern numerous but usually see two or three in the course of a winter or spring. September 24, 1917,

April 7, 1914. May 10, 1919, two flushed at a small pond.

49. *Ixobrychus exilis*—Least Bittern.

A regular summer dweller in our larger marshes and about inland ponds where a heavy growth of reeds and grass abound. At times, probably often, they nest in small colonies. May 22, 1914, a nest was found with four young seemingly but three or four days old. April 3, 1918, earliest arrival record.

50. *Ardea herodias wardi*—Ward's Heron.

Very generally distributed except while attending to their affairs of incubation, when they generally associate in colonies of a few or many. Singly and in small groups they wade the shoals along shore or glean from pond or stream. Almost as wary as an old Turkey they move off on labored wing, beat far in advance of an approaching boat, seemingly in no haste, yet "safety first" by virtue of a timely start. March 16, 1918, young in nest. May 16, 1916, young almost ready to fly.

51. *Herodias egretta*—Egret.

While greatly diminished in numbers, compared with years gone by, this conspicuous bird is frequently to be seen in small companies along shore or on a favored marsh. I have not seen a nesting locality, but believe a few breed regularly with us. May 24, 1913, June 29, 1913, October 3, 1916.

52. *Egretta thula thula*—Snowy Egret.

The dainty and much persecuted "Little Egret" was formerly an abundant breeder in this locality. Alas! it has almost disappeared and one hears with sorrow the tales of the hundreds that were shot for their "scalps." I have no personal dates of their occurrence for several years, but sometimes hear of one being seen by an *old timer*, who claims to distinguish them from the immature of *F. cærulea*. R. W. Williams, Esq., noted two at East Goose Creek November 24, 1917. Auk, January, 1919.

53. *Hydranassa tricolor ruficollis*—Louisiana Heron.[1]

An abundant resident, nesting at times in large colonies, two hundred to four hundred pairs. Sometimes associate at nesting time with *F. cærulea*. They are rarely molested. The nests are usually placed in bushes near water, but on May 7, 1917, I discovered a colony of four hundred or more pairs nesting on a low island two miles off shore; the nest is a slight depression in the drift or reeds as left by an extra high tide. May 7, 1917, eggs fresh. June 6, 1915, a few eggs had hatched. Local name, "Silver Gray Heron."

54. *Florida cærulea*—Little Blue Heron.[1]

[1] See "Some Florida Herons" in Wilson Bulletin, June, 1918.

[1] On May 7, 1916, an immature (white) specimen was shot, showing considerable progress towards an adult plumage.

Numerous and generally distributed, nesting in colonies, on bushes for the most part, in or bordering ponds. In a colony of about one hundred fifty pairs of these birds there were also nesting about the same small pond eight or ten pairs of Louisiana Herons (*H. t. ruficollis*), one pair Green Herons (*B. v. virescens*), and about thirty pairs White Ibises (*G. alba*). April 1, 1917, egg laying incomplete. On April 30, at same rookery, some young were traveling over the bushes, using bills as well as toes in progression.

55. *Butorides virescens virescens*—Green Heron.

Quite generally distributed, but not numerous. A few seen every year about ponds and streams. Nest with fresh eggs April 4. I have never seen it here in mid-winter. March 16, 1918, December 4, 1918.

56. *Nycticorax nycticorax nævius*—Black-crowned Night Heron.

While these birds are with us throughout the entire year I have failed to find their nesting locality. In winter they frequent the broad open marshes in companies of twenty to forty or more.

57. *Nyctanassa violacea*—Yellow-crowned Night Heron.

Much less numerous than the preceding species and usually seen singly or but two or three together. They frequent more secluded ponds or may be seen fishing a tidal creek at low water after sunset. Do not occur in winter.

58. *Grus mexicana*—Sandhill Crane.

In former years it was not uncommon to see these birds in their wanderings and a pair frequented and probably nested on one of our river marshes about 1895. Two birds were seen flying high overhead May 20, 1913. It is reported that two were shot in southwestern part of our county about May 1, 1918.

59. *Rallus elegans*—King Rail.

Probably a regular resident. An adult with a single half-grown young was seen May 26, 1917. One noted November 21, 1916.

60. *Rallus crepitans scotti*—Florida Clapper Rail.

Our coastal and larger tidal river marshes abound with this species. Eggs noted from April 18 throughout June. Many nests are destroyed by storms, high tides and Fish Crows.

61. *Rallus virginianus*—Virginia Rail.

Usually a few may be seen every winter, but I have not observed them numerous.

62. *Parzana carolina*—Sora.

Seemingly much more abundant than the Virginia Rail. Found from the last of September until May. One shot May 6, 1915, and others seen May 7 had the bright yellow—nuptial—tip to bill. September 27, 1913, May 14, 1916.

63. *Coturnicops noveboracensis*—Yellow Rail.

May occur regularly. My only record is May 22, 1915.

64. *Creciscus jamaicensis*—Black Rail.

Doubtless they occur regularly during the fall and winter, but from their secretive habits are unobserved. Two were taken during very high water September 4, 1915, and two others seen on the same date. Two were seen October 9, 1916.

65. *Ionornis martinicus*—Purple Gallinule.

Not noticed as abundant and I have no records in mid-winter, although it may occur then.

66. *Gallinula galeata*—Florida Gallinule.

More generally distributed than the preceling species in summer and found regularly in winter.

67. *Fulica americana*—Coot.

"Blue Petes" are numerous from early fall until March and occasionally birds are seen during the summer, but whether or not they are breeders I have been unable to determine with certainty.

AN ANNOTATED LIST OF THE LAND BIRDS OF SAC COUNTY, IOWA

BY J. A. SPURRELL, OF WALL LAKE, IA.

This paper continues a local list of the birds of my home county, the first part of which appeared in the Wilson Bulletin, Vol. XXIX, Number 3, (September, 1917), The reader of this list will find an account of the local topography and other data on the manner of collecting notes, etc., in the introduction of my other article.

This article is based on my own observations to a much larger degree than the former one, as only a few of the land birds have become extinct. I expected to find a record among the pioneers of some one having seen the Carolina paroquet, but I found only rumors of it, and therefore have given quotations showing that its former range covered this county. I was very much surprised to find among the pioneers a knowledge of the pileated woodpecker and the magpie, and still more surprised to find a Clarke's nutcracker which was taken locally among the specimens in the Smith collection at Odebolt, Iowa. Mrs. Smith has no catalogue of this collection but I interviewed

both Mr. Smith and her before her husband's death, and obtained a record of all specimens taken locally.

As in my former article, all data are based on careful sight records, specimens found dead, or specimens in the Smith collection. I do not expect subspecific sight records to be accorded the same value that they would have had the specimen been taken. In scientific names for subspecies, I have followed Anderson's "Birds of Iowa." Other names follow the A. O. U. 1910 checklist. I have not listed some of the vireos and flycatchers which undoubtedly occur, owing to the difficulty of sight identification. The migration data would be much more complete, had I been able to devote more time to it, especially in the later years of the record. However it is a good average for the region about Wall Lake. My complete records are in the possession of the Biological Survey at Washington, D. C., should further information be desired.

ANNOTATED LIST

BURROWING OWLS IN SAC COUNTY, IOWA

(Addenda to Former Article)

In July, 1917, I saw two burrowing owls five and one-half miles north of Wall Lake, and also an occupied burrow. The old birds circled anxiously about as though their young were in the burrow. On the same day, I saw another pair about three miles north of this on one of the hills bordering Indian Creek.

Carolina Paroquet (*Conuropsis carolinensis*).

I found no observers of this bird but give the following quotation from "The Birds of Iowa" by Rudolph Martin Anderson. Proceedings of Davenport Academy of Sciences, March, 1907, pages 269, 270, 271. "The beautiful Carolina paroquet formerly ranged in flocks as far as the northern part of the state, but has not been observed in the state for at least thirty years and has practically been exterminated throughout the United States.

'Paul Bartsch, in an article on 'Birds Extinct in Iowa and those Becoming so,' states that the paroquet formerly ranged as far north as Spirit Lake, where it would frequently remain until the cold and snow would drive it southward. Its food in winter consisted chiefly of the seeds of the cocklebur. Its nature was so peculiar that when one of the number was killed or wounded, the others would gather around it with shrill cries and in this way the entire flock could easily be annihilated."

Yellow-billed Cuckoo (*Coccyzus americanus americanus*).

This species is the common cuckoo of Sac county, according to my observations, and I have looked at the bill of every cuckoo I got close enough to. A pair or more are found in nearly every grove. My first seen dates in spring range from May 14 to June 3. I have seldom heard its loud "kelp, kelp," until the first week in June, which makes it appear probable that it is quiet for some days after arrival. I have at several different times seen one with a dragon fly in its bill. I have known them to attack and drive away domestic fowls which came near the tree in which their nest was located.

Black-billed Cuckoo (*Coccyzus erthrophthalmus*).

This species is very rare about Wall Lake. I saw one July 28, 1913, another July 23, 1914, and my sister saw one in the spring of 1917. Mrs. George May also reported it.

Belted Kingfisher (*Ceryle alcyon alcyon*).

During the spring migration, I have noted this species at Wall Lake and very rarely in the "Goosepond." I have seen it in summer along the Raccoon river, and in the summer of 1916 I saw one several times along the Boyer river west of Wall Lake. I think it nests along both rivers.

Hairy Woodpecker (*Dryobates villosus villosus*).

The hairy woodpecker is a tolerably common winter visitant about Wall Lake. I have never found a nest or seen it in summer.

Northern Downy Woodpecker (*Dryobates pubescens medianus*).

This species is somewhat more common than the hairy woodpecker in winter and I have seen an occasional one in summer. I have found them in July, apparently breeding, in the woods along the Raccoon river at Sac City.

Yellow-bellied Sapsucker (*Sphyrapicus varius varius*).

I have found this bird as a rare spring migrant only. I saw one individual May 20, 1909, and another May 23, 1913. Many years ago, one nearly killed some Scotch pine trees in our front yard by drilling holes in the bark.

Northern Pileated Woodpecker (*Phloetomus pileatus abieticola*).

According to Mr. Hugh Cory of Sac City, a very large woodpecker, which in the vernacular was called "woodcock," was found in the timber along the Raccoon river in early days. Mr. Cory said that the early settlers considered them good eating. This resulted in their early extinction, as Mr. Cory stated that the last one he saw was in 1865.

Red-headed Woodpecker (*Melanerpes erthrocephalus*).

There is a specimen in the Smith collection. This species is a common summer resident, frequently using telephone poles to nest in. My first seen dates vary from April 22 in 1913 to May 15 in 1910. They depart early in the fall; September 7 and 14 being two of my last seen dates. I knew of one second brood being reared in which the young did not fly until about September 15. The parent birds departed only a few days after the young left the nest, while the latter remained in the vicinity until about October 15. The red-heads are not peaceable neighbors with the flickers and sometimes drive the latter away.

Northern Flicker (*Colaptes auratus luteus*).

The flicker is an abundant migrant, a common summer resident, and a rare winter resident in Sac county. I have known of a single individual wintering in the years 1910, 1911, 1912, and 1914. For many years flickers nested between the walls of a double-walled building stuffed with flax straw. I have had both flickers and red-heads nest in bird boxes which had ground cork in the bottom for a nesting material. Flickers can frequently be found over a mile from any trees, apparently feeding upon ground insects in pastures and stubble fields.

Red-shafted Flicker (*Colaptes cafer collaris*).

One reported by Mrs. E. B. Hayden.

Whip-poor-will (*Antrostomus vociferus vociferus*).

I have found this species very rare at Wall Lake, having identified only one individual, May 14, 1910. Mr. C. Orville Lee reported it as formerly common and nesting near Sac City.

Nighthawk (*Chordeiles virginanus virginianus*).

Specimen in the Smith collection. The nighthawk is a common migrant at Wall Lake, but I have never known it to nest in this vicinity. Mr. Lee states that it is a common nesting species in the vicinity of Sac City. I have found it common in early July along the Raccoon river east of Lake View. My first seen dates range from May 19 to May 30.

Sennett's Nighthawk (*Chordeiles virginianus sennetti*).

My only record is that of a female which I found sitting on a clod in a plowed field I was preparing for alfalfa seeding on August 12, 1909. It was a very pale silvery color, so much so that it was very conspicuous against the black dirt, in marked contrast to the ordinary nighthawk, which can hardly be seen in a similar situation. Although I flushed it repeatedly, it always perched upon the ground again. It allowed me to approach as close as eight feet and the horses still closer.

Chimney Swift (*Chaetura pelagica*).

For many years, I saw no swifts in Wall Lake, noting the first May 28, 1908. I have seen it every year since then, the dates of the first arrivals varying from April 26 to May 19. Old residents of the town report that the species formerly nested in the chimneys of houses. I have also seen it flying over the towns of Odebolt, Lake View, and Sac City. In October, 1917, I found an abandoned chimney swift's nest in an empty silo at Belle Plaine, Iowa.

Ruby-throated Hummingbird (*Archilochus colubris*).

This tiny bird is usually a rare migrant, but in occasional years I have found it an abundant migrant, frequenting the apple orchards when these are in bloom. First seen dates vary from May 7 to May 30. It has been reported as nesting, but I have never seen it in summer except during August, when I took it to be a migrant.

Kingbird (*Tyrannus tyrannus*).

A common summer resident. The dates of first arrival vary from April 30 to May 12. Nearly every grove has its pair of kingbirds and I have even found a nest built on a brace in a fence corner, one-half mile from the nearest trees. They frequent wire fences out in the fields a great deal, especially after the young have flown. I have never seen the red crest on a living kingbird except when displayed by a victorious male after defeating a rival.

Arkansas Kingbird (*Tyrannus verticalis*).

A rare, but in recent years, a fairly regular migrant. I first identified it May 31, 1910, and since then have seen from one to four individuals every year. My sister saw three on May 15, 1913, and I saw one on August 20, 1913. Other first seen dates are: May 20, 1912, May 11, 1914, and June 9, 1915. In the summer of 1915 a pair stayed about our grove until late in June, but I do not think they nested.

Crested Flycatcher (*Myiarchus crinitus*).

A tolerably common summer resident along the Raccoon river and an occasional summer visitant at Wall Lake. I have noted it at the latter place, June 25, 1911, and June 13, 1915.

Phœbe (*Sayornis phœbe*).

A tolerably common migrant and a rare breeder in the vicinity of Wall Lake. I found a nest under a bridge July 4, 1908. In the years 1912 and 1913, the first arrivals in a specially favorable locality came on March 31.

Olive-sided Flycatcher (*Nuttallornis borealis*).

Mrs. George May reported seeing three in the spring of 1912.

Wood Pewee (*Myiochanes virens*).

A common spring migrant, and a tolerably common summer resident and breeder.

Alder Flycatcher (*Empidonax trailli alnorum*).

A tolerably common migrant. I first identified it May 23, 1915. It was identified by my sister in the spring of 1917.

Least Flycatcher (*Empidonax minimus*).

Reported by Mrs. George May as abundant. I have found it common in the spring migration.

Prairie Horned Lark (*Octocoris alpestris praticola*).

This species occurs the year around, but is not as common in midwinter as in spring and summer. While cultivating corn in June I have frequently found their nests. They are placed at the base of a corn stalk, and are made of coarse grass leaves lined with finer grass leaves. They have contained either 2, 3, 4, or 5 eggs. I think four or five eggs is the complete set. On June 16, 1914, I found a horned lark's nest, filling it with dirt before I was able to stop the plow. I cleaned it out, unavoidably removing some of the lining in the process, and replaced the eggs. On June 24, when I again plowed the corn, I again filled the nest with dirt, and this time accidentally cracked one of the eggs in removing the dirt. It was alive and well advanced in incubation.

Magpie (*Pica pica hudsonia*).

In the early days of settlement this species was found in the timber along the Raccoon river. Mr. Shelt Tiberghien said that he had seen them previous to, and in the 1860's, Mr. Lee stated that he had seen about twelve in the county, mostly in the early days, but with the last one seen in 1904.

Bluejay (*Cyanocitta cristata cristata*).

The blue jay is only a tolerably common breeder and a rare winter resident at Wall Lake. It is usually common in April and May, a local migration apparently taking place in these months. I have seen as many as ten to fifteen in one flock at this time and all flying northward. The blue jay is common both winter and summer in the timber along the Raccoon river.

Crow (*Corvus brachyrhynchos brachyrhynchos*).

Specimen in the Smith collection. The crow is a tolerably common breeder, a pair frequently nesting in a farmer's large grove or in an isolated clump of trees. During severe weather in winter, the crew is often absent from the vicinity of Wall Lake for long periods, but after the spring thaws they are much more common. I once saw a flock of about 200 flying in great circles

trending to the northward one spring day. Ordinarily ten to fifteen are as many as will be seen together at one time.

Clarke's Nutcracker (*Nucifraga columbiana*).

It is an accidental visitant. There is only one record for the county and fortunately this is authenticated by the specimen which is in the Smith collection.

Bobolink (*Dolichonyx oryzivorus*).

The bobolink is a common breeder on the borders of all sloughs or in wet pastures where tall bluegrass is found. My first seen dates vary from May 3, 1912, to May 18, 1910. Along in late July and August the plumage of the male changes to resemble that of the female, but is much brighter and more yellowish than is the plumage of the female in spring. The bobolinks then leave the pasturage or hayfields where they nested and congregate in flocks among the reeds or tall grass bordering lakes or sloughs. My last seen dates are from September 3 to October 10.

Cowbird (*Molothrus ater ater*).

Specimen in the Smith collection. The cowbird is a common breeder. I have frequently found its eggs in the nests of yellow warblers, and once each in a wood thrush's nest and a goldfinch's nest. It has been my experience that the yellow warbler always deserts its nest when a cowbird's egg is removed from it. After the nesting season the cowbirds leave the vicinity of the groves, and gathering in small flocks frequent pastures and similar places, but not being found about cattle as much as their name would indicate.

Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*).

This bird is an irregular migrant, being common some years and rare in others. In the spring migration they sometimes fly in pure flocks and at other times in mixed flocks with redwings and grackles.

As a breeder, it is found in sloughs where very tall grasses such as reed canary grass grow in standing water. It nests in the "Goosepond" when this depression is full of water in summer. It formerly nested at a small pond north of Carnavon. My first seen dates in spring range from April 15 to May 3.

Red-winged Black-bird (*Agelaius phœnieus*).

An abundant migrant, a common breeder, and an occasional winter visitant. I have winter dates of January 21, 1908; January 4, 1913; January 27, 1914; February 19, 1915. It usually arrives from March 4 to March 30. The birds continue in flocks for some weeks, not beginning nesting until the season's growth in the sloughs has attained considerable size. I have found its nests

built in curled dock plants of the current season's growth. The nest is usually placed in plants over water, but is often built among the grass on the tops of the "bogs" or hummocks in sloughs, or even among heavy weed patches in moist places. In the fall they assemble in huge flocks and visit the grain and corn fields, often damaging the tips of ears of corn when it is in the milk or roasting ear stage.

Meadowlark (*Sturnella magna magna*).

Since I do not possess a musical ear and have never been able to distinguish the eastern and western meadowlarks with certainty, I include both forms under the common name. The meadowlark is an abundant migrant and summer resident. It is one of the earliest migrants, often braving the last snow storms rather than go south again. First seen dates are from March 5 to March 25. It nests in pastures and hayfields and I think sometimes rears a second brood as I have found a nest under a bull thistle in late July. I have several times found single eggs lying upon the ground without any attempt at a nest. My father has seen a meadowlark attack and drive away a Franklin's spermophile, presumably from the vicinity of its nest.

Orchard Oriole (*Icterus spurius*).

A tolerably common migrant and breeder. First seen dates vary from May 8 to May 30. I have an abandoned uncompleted nest of this species made of bluegrass blades, which was started in a Scotch pine tree by a pair of these orioles, the male of which had the yellowish plumage and black throat patch of the second-year bird. The species departs very early in the fall.

Baltimore Oriole (*Icterus galbula*).

This oriole is a very common migrant and summer resident. It nests both in the farmer's groves and the shade trees of the towns. My first seen dates range from April 30 to May 13. It also departs very early in the fall.

Rusty Blackbird (*Euphagus carolinus*).

Specimen in the Smith collection. This species is a late fall migrant, often in company with redwings and Brewer blackbirds. I have two winter records of January 1, 1912, and January 12, 1913. In spring it usually migrates in flocks of its own kind only. My first seen dates cover the period from March 20 to April 19.

Brewer's Blackbird (*Euphagus cyanocephalus*).

A fairly common migrant, often in mixed flocks in the fall. At this season they follow the plow to pick up white grubs, angleworms and other insects, making identifications easy because they

often come within a few feet of the plow. In spring, my first seen dates are from March 15, 1914, to April 28 in 1910.

Bronzed Grackle (*Quiscalus quiscula aeneus*).

This species is a common migrant and breeder, and an occasional rare winter resident. A small flock wintered in the years 1911 and 1913, roosting in some white pine trees just north of the town of Wall Lake. In other years the first seen dates are from March 11 to March 29. On my home farm this species quit nesting in the soft maple trees of the grove when these reached a height of from forty to fifty feet, and then nested in the trees of the orchard from ten to twenty feet from the ground. During August, they are often found in mixed flocks with redwings, feeding from the grain shocks and corn fields.

Redpoll (*Acanthis linaria linaria*).

I have seen this species only one winter. I first identified it December 3, 1910, when I saw a small flock. It was tolerably common all that winter.

Goldfinch (*Astragalinus tristis tristis*).

The goldfinch is a rare winter resident, a common migrant, and a tolerably common breeder. I have seen it in mid-winter only twice and the same number of times in winter plumage in early spring. The first migrants in summer plumage were seen from May 3 to May 20.

Pine Siskin (*Spinus pinus*).

I have seen this species only twice. On September 2, 1908, a small flock of eight or ten were eating spruce tree seeds in our front yard. On May 13, 1914, I saw one pine siskin in company with a female goldfinch, and later in the day, about twenty siskins in a flock by themselves among the trees in town.

Snowflake or Snow Bunting (*Plectrophenax nivalis nivalis*).

Specimen in the Smith collection. The snowflake is very rare and irregular in its occurrence. On January 17, 1910, during a very severe blizzard, a flock of about one hundred alighted for a short time on a straw stack in our yard. On December 25, 1911, I saw one which acted as though it was lost. Dr. A. S. Hayden reported seeing a flock one winter, also during very severe weather.

Lapland Longspur (*Calcarius lapponicus lapponicus*).

This species is a regular and common fall migrant, a rare to tolerably common winter resident, and an abundant but very erratic spring migrant. In the spring migration, it travels in huge flocks, flock after flock passing northward and all going over in one day. My first seen dates in spring are few, February 24,

1913, and February 18, 1914. On April 18, 1910, I saw a huge flock of them in breeding plumage, the only ones I have ever seen in that plumage. They were feeding in a hayfield and gradually working my way, I stood still and was soon surrounded by them. They made a beautiful sight on the partly snow-covered ground. I think they had passed north and been driven back by a severe snow storm occurring the day before. March 23 is about the usual last seen date, but I saw one lone bird on May 22, 1915.

Chestnut-collared Longspur (*Calcarius ornatus*).

Mrs. E. B. Hayden and Mrs. George May reported two seen in the fall of 1912.

Vesper Sparrow (*Poœcetes gramineus gramineus*).

A rare spring migrant. I first identified it April 22, 1911. I have never found it breeding.

Savanna Sparrow (*Passerculus sandwichensis savanna*).

A tolerably common migrant in the open fields. I have never seen it near trees or bushes. My first seen dates vary from April 29 to May 9.

Grasshopper Sparrow (*Ammodramus savannarum australis*).

A common migrant and summer resident. It nests commonly in meadows and pasture lands, the nest being well concealed in the grass.

Leconte Sparrow (*Passerherbulus lecontei*).

On May 22, 1915, I captured a sparrow with a broken wing in the grass of a large pasture far from any trees. At first I could not identify it, but by comparison with the sparrow pictures in Bird Lore finally determined that it was a Leconte sparrow.

Lark Sparrow (*Chondestes grammacus grammacus*).

A rare migrant and also a rare breeder. I first identified it May 31, 1910. On July 4, 1911, along the Raccoon river, straight east of Lake View, I found a pair with young just able to fly.

General Notes

NOTES FROM LAKE COUNTY

WESTERN SANDPIPER.—Sunday, July 20, 1919, I flushed five small "peeps" that were feeding along the beach of Lake Erie. Peep-like, they flew a hundred yards, turned, came back and alighted practically in the same place, which was not over a rod from where I stood. As they lit in I put my glass on them and said to myself, "Four Semipalmated Sandpipers and a Red-back." But immediately the absurdity of its being a Red-back was evident, for *they* were not due for nearly three months, the bird was too small, and though the bill was long and bent at the tip, it was not near the length of a Red-back. To make my meaning clear, and to let the reader understand why I momentarily thought it a Red-back, will say the bill of this little peep bore the same approximate ratio to the size of the bird as does the bill of the Red-back to the size of that bird.

I watched them a long time as they fed along the water's edge, keeping so near that the semipalmation of the feet could be readily seen as they lifted them. (I have often noticed the Semipalmated lifts its feet differently than does the Least Sandpiper,—as though they were heavier, and when very near one could imagine they had mud between their toes.) I estimated, while watching them, the length of the bills of the four Semipalmates to be not over .75 of an inch, while that of the Western was fully 1.25 and distinctly bent at the tip. I knew the Western *would* have a longer bill but was not prepared for quite such a difference nor for such a decided bend. Upon reaching home I looked up measurements and found the extremes to be .66 for the minimum of the Semipalmated and 1.20 for the maximum *female* Western. Therefore my field estimation was not far out of the way, and the bird must have been a female with extreme length of bill. Half an inch added to the bill of a bird as small as a Peep makes a very evident change in its appearance. In the lately published "Game Birds of California" there is a cut of the heads of Least and Western Sandpipers which conforms very closely to my birds, although I would say this particular specimen had a still more evident bend at the tip.

PARASITIC JAEGER.—This bird is reported now and then along the lakes, but I made a record of it September 20, 1914, that may be worth while to publish on account of its early appearance. While walking the beach I noticed a dead bird on the sand that at a casual glance I took to be a Crow's remains and would have

passed it by had I not noticed the webbed feet. Upon close examination I found it to be a Jaeger, from the hooked bill with separate nail; and called it Parasitic mainly from size of bird, and relative size of the bill compared to that of a Pomarine in my possession. It was doubtless an immature for I could detect no lengthening of the central tail feathers. The plumage was so greased from the decayed flesh,—for nothing was left but bones and feathers—that little could be said of original coloration. All looked an oily brownish black. As the bird could not have reached its condition in much less than ten days' time, its death must have occurred as early as September 10.

HENSLOWS SPARROW.—At last a record for Lake County! After waiting for many years with open ears, whenever in a likely place to hear it, I was awarded on May 10 (1919), when, in a pouring rain I was passing a field often frequented by Grasshopper Sparrows, by hearing a most vehement "*se-lick se-lick*," and sure enough, there on top of some bent-over grass the little fellow sat. I approached as close as I dared, shielding my glass with an umbrella, and took notice of the streaked sides, the characteristic black marks on the head, and particularly of the bill. This last should serve as a good field mark in conjunction with the streaked sides, for it is larger than that of the Grasshopper Sparrow,—seemingly out of proportion to the size of the bird. Had hopes it would remain to breed, but have neither seen nor heard it since.

ORANGE-CROWNED WARBLER.—The spring migration, deficient in the numbers of many species, and especially so in regard to the Black-throated Blue (only four individuals having been seen), contained, however, a generous sprinkling of this scarce and easily overlooked nondescript Warbler. I had opportunity to study it closely and took advantage of it. Although the first suspects were high in the trees and the identity arrived at mainly by a chance song, a few days later I found a few at two different locations marooned in low growth by stress of chilly and cloudy weather. A particularly pleasant hour was spent with one on May 17 among a mixed company of Warblers in a thorn bush thicket. Chilly and with a fine drizzle of rain, all the other species were diligently and dejectedly feeding without a sound, but the little Orange-crowned kept up a continuous movement, flitting its wings like a Kinglet, and passing from one thorn bush to another, the busiest bird in the lot; and I would have lost him a number of times had he not kept up a loud and oft repeated "chip, chip, chip," which enabled me to locate him again at once.

PINE WARBLER AS A SUMMER RESIDENT.—On July 16, and also again on the 21st, 1919, I watched for some time a female of this species. The bird was in an old gravel pit grown up to a thicket

of Yellow Locust some twenty feet high. The ground below being almost barren of undergrowth it was not unlike the floor of a pinery. One side of the pit is bounded by the wooded bank of a stream, upon which were a few white pines and some hemlock. She was hunting the branches and leaf fronds for food, and kept very quiet, uttering only a soft low "seep, seep," when about to fly from one tree to another.

E. A. DOOLITTLE.

Painesville, Ohio, Lake County.

WATERFOWL DIE FROM EATING SHOT

Wild ducks and other waterfowl sometimes die from lead poisoning resulting from swallowing stray shot which they pick out of the mud about shooting grounds. Many ducks that become sick from lead poisoning finally recover, but it is probable that the effect is permanently injurious not only to the individual but to the species. It has been ascertained by experiment that lead greatly impairs the virility of male domestic fowls. Females mated with them lay many infertile eggs, while in many of the eggs that are fertilized the embryo dies in the shell or the chick emerges weak and unable to withstand the hardships of early life. What effect lead poisoning has on female wild fowl has not been definitely ascertained, but, as the fact is well known that lead produces abortion in female mammals, there is a possibility that it exerts a bad effect on female waterfowl during the breeding season. Thus, the supply of waterfowl is likely to be decreased by lead poisoning not only by the number of birds that die directly from it but indirectly by impairment of reproduction.

These facts are set forth by the United States Department of Agriculture in Bulletin 793, "Lead Poisoning in Waterfowl," about to be published as a contribution from the Bureau of Biological Survey. Reports of waterfowl apparently sick from lead poisoning have been coming in for several years. The Biological Survey undertook an investigation at various shooting grounds to determine how common the taking of shot by waterfowl is, and a series of experiments to ascertain the effect of shot swallowed. It was found that at places where much shooting is regularly done from blinds, shot at the bottom of the shallow water are so numerous that one or more was found in practically every sieveful of mud or silt, and that they are swallowed by waterfowl whenever found as a result of this habit of swallowing small, hard objects to supply grit for the gizzard.

The experiments have shown that shot swallowed are gradually ground away in the gizzard and pass into the intestines, pro-

ducing a poisoning that results in progressive paralysis and, usually, death. Experiments with wild waterfowl captured when young and reared in captivity—to obviate the possibility of their having taken lead before the beginning of the experiments—have shown that six pellets of No. 6 shot constitute an amount of lead that is always fatal. Two or three shot were sufficient to cause death in several instances. In one experiment, two mallards were given one No. 6 shot each. One of them died in nine days and the other was able to throw off the poison.

The list of species known to have been poisoned by eating shot consists of mallard, pintail, and canvas-back ducks, the whistling swan, and the marbled godwit, but many other species, particularly of ducks and geese, are undoubtedly affected by it, according to the bulletin.

Unfortunately, nothing can be done at this time to protect waterfowl from lead poisoning except to call attention to the malady and to make known its cause and symptoms. The Department, however, desires statistics on the numbers and species of birds affected and asks that sportsmen and others report to the Bureau of Biolgical Survey all cases that come to their attention.

THE ANNUAL MEETING

Bear in mind that our next annual meeting will be held in St. Louis, Missouri, in conjunction with the meetings, of the American Association for the Advancement of Science. No program of these meetings has been issued, so that the dates of our meetings cannot be announced at this time. But it is probable that our meetings will be held on December 30 and 31. Announcement of the exact time and place of meeting will be made in ample time by circular letter. It is hoped that you will not wait for an invitation to prepare and read a paper at this meeting, but that you will send your title as soon as possible to the secretary, A. F. Ganier, 1023 Villa Street, Nashville, Tenn. Liberal coöperation will ensure a most profitable and interesting meeting.

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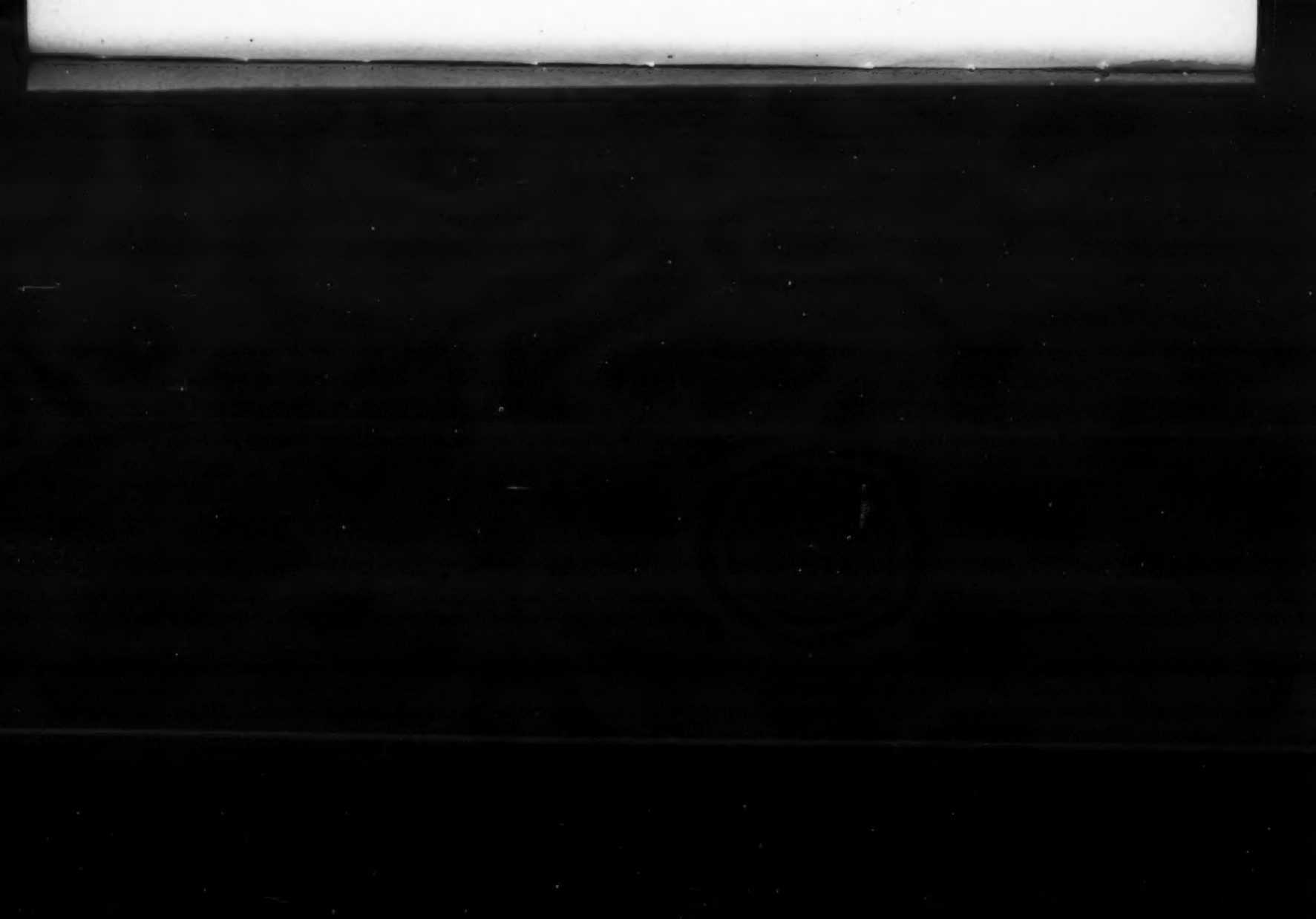

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Zenaidura macroura carolinensis, 6.
Zonotrichia albicollia, 16.
leucophrys gambeli, 15.
leucophrys, 15.
querula, 15.